

Total E&P Congo

# Offshore: Total hunts down micro-leaks

An innovative process allowed the detection of a micro-leak on a heat exchanger installed on a drilling barge off Congo. Thanks to a quick intervention on site, a complex replacement could be avoided.



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**H**ow to ensure the safety while avoiding the replacement of a 37 tonne tubular exchanger installed on a barge sixty kilometres offshore? This is the question that Total E&P Congo technical managers, responsible for the drilling barge of N'Kossa, asked themselves after noticing a micro-leak difficult to locate by means of conventional methods.

### An original approach

On this tubular exchanger, used to cool down the gas produced at high pressure

(200 bar), the Cetim proposed an original leak detection approach by means of a helium mass spectrometer.

This technique, lighter than conventional inspections, is in particular used for the detection of so-called fugitive emissions that may not exceed one drop every 100 years!

The test procedure worked out consists in pressurising the tubes five by five and by 50 bar levels. Two teams intervened for one month in two shifts so as to test the 1,182 tubes installed in a hairpin pattern (which makes 2,364 holes).

### 10% of the tubes can be blocked up

Therefore, it was possible to locate a micro-leak that was only visible from 150 bar on. Then, blocking up the defective tube was sufficient and the exchanger could be operated again without incident.

Up to 10 % of the tubes can be blocked up without altering the performance of the entire system.

### OUR CLIENT

**Corporate name**  
Total E&P Congo

**Activity**  
Energy

**Location**  
Pointe Noire, Republic of Congo

**Workforce**  
1,000

## Cetim's strong point

Equipped with sophisticated material such as a helium mass spectrometer and thanks to its experience in the field of leak detection, the Cetim proved its capacity to apply on site, in a difficult environment, methods developed and tested in laboratory.

